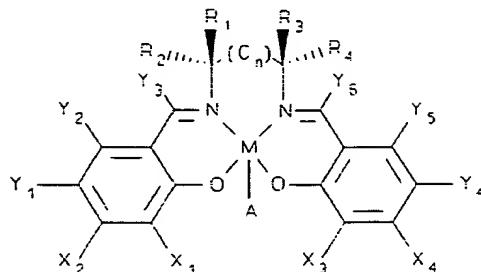


CLAIMS

1. A salen-metal compound having detectable antioxidant activity and according to the structural formula:

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wherein M is selected from the group consisting of Mn,

15 Co, Cu, Fe, V, Cr, and Ni;

A is an axial ligand selected from the group Cl, F, O, Br, or acetyl;

n is either 0, 1, or 2;

20 X₁, X₂, X₃ and X₄ are independently selected from the group consisting of hydrogen, lower alkoxy, halides, and aryloxy;

Y₁, Y₂, Y₃, Y₄, Y₅, and Y₆ are independently selected from the group consisting of hydrogen, lower alkoxy, aryloxy, and halide; and

25 R₁, R₂, R₃ and R₄ are independently selected from the group consisting of hydrogen, aryl, substituted aryl, heteroatom-bearing aromatic groups, arylalkyls, lower alkoxy, and halides; with the proviso that one of R₁ or R₂ may be covalently linked to one of R₃ or R₄ forming a cyclic structure.

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2. A salen-metal compound of claim 1 having a structural formula selected from the group of compounds consisting of: C31, C32, C33, C34, C35, C36, C37, C38, C39, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76,

C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88,
C89, C90, C91, C92, C93, and C94 as shown in Fig. 12^(A,B), Fig. 19A
and Figs. 11^(A,B), 23, 24A-24I, and 26A-26E.
do not now compound *do not now claim*

5 3. A salen-metal compound of claim 1 having a
structural formula selected from the group of compounds
consisting of: C41, C42, C43, C44, C45, C46, C47, C48, C49,
C50, C51, C54, C55, C56, C58, C67, C68, C71, C72, C73, C74,
C76, C79, C80, C81, C82, C83, C84, C85, C86, and C87.

10 4. A salen-metal compound of claim 1 having a
structural formula according to Structure X, Structure XI,
Structure XII, Structure XIV, Structure XV, Structure XVI,
Structure XVII, Structure XVIII, Structure XX, or Structure
15 XXII as shown in Figs. 26A-26E, with the allowed substituents
as described for each Structure.

20 5. A salen-metal compound having detectable
antioxidant activity and selected from the group consisting
of: C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41,
C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C54, C55,
C56, C58, C67, C68, C71, C72, C73, C74, C76, C79, C80, C81,
C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, *or*
C94.

25 6. A salen-metal compound of claim 5, selected
from C32, C40, and C81.

30 7. A salen-metal compound of claim 1, wherein at
least two of X₁, X₂, X₃, X₄, Y₁ and Y₄ is methoxy or halide.

35 8. A salen-metal compound of claim 1, wherein n is
0 and wherein one of R₁ or R₂ is covalently linked to one of R₃
or R₄ forming a six-membered ring.

9. A salen-metal compound of claim 8, wherein the
six-membered ring is a benzene ring or a pyridine ring.

10. A salen-metal complex having antioxidant activity and having a structure according to the structural formula shown in Fig. 11^(A)

wherein M is selected from the group consisting of Mn,
5 Co, Cu, Fe, V, Cr, and Ni;

A is an axial ligand selected from the group Cl, F, O, Br, or acetyl;

X₁, X₂, X₃ and X₄ are independently selected from the group consisting of hydrogen, lower alkoxy, halides, and
10 aryloxy;

Y₁, Y₂, Y₃, Y₄, Y₅, and Y₆ are independently selected from the group consisting of hydrogen, lower alkoxy, aryloxy, and halide; and

R is selected from the group consisting of: 1,2-ethane
15 diyl; 1,2-benzenediyl; 2,3-pyridine diyl; (2-hydroxy)-2,3-propane diyl; 1,2-ethene diyl; 1,2-epoxy ethane diyl; alkaylene diyl; and cyclohexane diyl; wherein members of said group are substituted or unsubstituted.

20 11. A salen-metal complex of claim 10, wherein R is a structure having a planar conformation.

12. A pharmaceutically acceptable composition comprising an excipient or carrier and a salen metal compound.
25 having detectable antioxidant activity and according to Structure X, Structure XI, Structure XII, Structure XIV, Structure XV, Structure XVI, Structure XVII, Structure XVIII, Structure XX, or Structure XXII as shown in Figs. 26A-26E, or according to Fig. 11, with the allowed substituents as
30 described for each structure.

does not reflect the claimed structures

13. A pharmaceutically acceptable composition of claim 10, wherein the salen-metal compound is selected from the group consisting of: C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C54, C55, C56, C58, C67, C68, C71, C72, C73, C74, C76, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89,

which reflects proper Fig 11

C90, C91, C92, C93, and C94.

14. A pharmaceutically acceptable composition of
claim 10, wherein the salen-metal compound is C32, C40, or
5 C81.

A 15. A salen-metal compound of claim 1 ~~or claim 10~~
having detectable superoxide dismutase activity.

A 10 16. A salen-metal compound of claim 1 ~~or claim 10~~
having detectable catalase activity.

A 15 17. A salen-metal compound of claim 1 ~~or claim 10~~
having detectable peroxidase activity.

A 20 18. A salen-metal compound of claim 1 ~~or claim 10~~
having detectable superoxide dismutase, catalase, and
peroxidase activity.

A 25 19. An antioxidant composition comprising a salen
metal complex of claim 1 ~~or claim 10~~ in a tablet, capsule,
ampule, suppository, inhaler, or hypodermic syringe.

A 20 20. A method for inhibiting damage to cells induced
by reactive oxygen species, the method comprising contacting
cells having oxidative stress with a salen-metal complex of
claim 1 ~~or claim 10~~.

A 30 21. A method for preventing, arresting, or treating
a free radical-associated disease state by administering to a
patient a therapeutically-effective dose of an antioxidant
salen-metal complex pharmaceutical composition comprising an
antioxidant salen metal complex of claim 1 ~~or claim 10~~.

A 35 22. A method of claim 21, wherein the salen-metal
complex is selected from the group consisting of: C31, C32,
C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44,

1/24/96
1/24/96
proper
1/24/96

C45, C46, C47, C48, C49, C50, C51, C54, C55, C56, C58, C67, C68, C71, C72, C73, C74, C76, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, and C94.

5 23. A method of claim 22, wherein the salen-metal complex is C32 or C40.

24. The use of a salen-metal compound according to claim 1 or ~~claim 10~~ having predetermined superoxide dismutase or catalase activity to treat or prevent disease.

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